

# THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

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Beginning with this issue the publication day of the Motor Age is changed from Thursday to Wednesday of each week. Advertisers and correspondents should guide themselves accordingly in mailing copy.

## WASHINGTON SHOW WELL PATRONIZED

EXHIBITION IN CONVENTION HALL ATTRACTS LARGE DAILY CROWDS OF CAPITAL PEOPLE—MANY POLITICAL CELEBRITIES AMONG THE VISITORS—DISPLAYS LIMITED IN NUMBER BUT WELL ARRANGED AND INTERESTING—STEAM VEHICLES SEEN IN LARGEST NUMBERS ON THE EXHIBITION TRACK—DESCRIPTIONS OF DISPLAYS

Washington, Dec. 15.—While the days of the horse are hardly "numbered," it is quite apparent that the motor vehicle, both as an industry and as a product, has one of the most promising futures of any line of development that has taken place in the last few years. Not one of the thousands of interested people who visited the automobile show held in Convention hall during the past week failed to be impressed with the notable progress made in the automobile industry

during the past year, and the lively interest evinced in the various exhibits and the close attention paid to the exhibitors when they were expatiating on the merits of their respective machines proved conclusively that there is no stronger stimulant or better method of awakening public interest in the automobile than by means of a show. While the exhibition was somewhat small in comparison with the two shows held in New York recently, nevertheless it was of suf-

ficient magnitude and variety to give the visitors an excellent idea of what is new in automobile manufacture.

#### Prominent People Present

The show closed Saturday night and, judging from the assertions of the exhibitors who were interrogated, the amount of business transacted during the week was as satisfactory as had been expected. The attendance averaged 2,500 per day and was notable from the fact that among those who attended were many people of national reputation.

The general is interested in automobiles as adapted to army needs and received some valuable information from a number of the exhibitors. Society folk visited the show in large numbers and the handsome costumes of the ladies gave additional charm to the scene presented by the hall when the show was at its height.

#### Interest Centers on Track

The most popular feature of the show from the standpoint of the spectators was the eight-lap board track that en-



VIEW IN WASHINGTON AUTOMOBILE SHOW

Many of the representatives of foreign governments in Washington are devotees of the automobile and they were out in full force getting a line on what is new in stylish carriages.

Two attaches of the Chinese legation visited the show on Friday afternoon and were quite impressed with what they saw. They were ridden about the hall in a number of vehicles and left the building staunch advocates of the new form of locomotion. Gen. N. A. Miles, head of the United States army, spent several hours at the exhibition, and was loud in his praises of the automobile.

circled the hall. It was occupied constantly by an endless procession of vehicles of many types and presented a scene of animation that greatly pleased the visitors. Most of the exhibitors had from three to six machines for demonstration purposes and they were on the move all the time giving visitors rides around the track.

This part of the program was varied throughout the week by brake and obstacle contests. Most of the honors in these events went to the Mobile and Locomobile people. Each of the two styles of vehicles represented won about the

same number of events. In truth the local show may be regarded as a triumph for the steam vehicles. They were constantly in evidence and made friends galore. Very few of the electric machines were on the track, and so naturally did not attract the attention they would otherwise have received.

Wednesday afternoon a number of the exhibitors participated in the parade incident to the celebration of the centennial anniversary of the establishment of the seat of government in the District of Columbia. About twenty-five vehicles were in line and they received marked attention all along the line of march, extending from the white house to the capitol. This feature of the parade furnished an object lesson of the progress that has been made in transportation during the past one hundred years.

#### Many Witness Floral Parade

The event of the week, however, was the floral parade, which took place on Thursday evening. Only upon rare occasions has Convention hall contained a larger crowd than it did on that night, and never before did it have a more delighted and enthusiastic audience. The parade of flower-decorated automobiles was the most brilliant spectacle it has been the fortune of Washingtonians to see in many a day. While only twelve vehicles were in line, the extreme beauty and originality of some of them more than compensated for the lack in numbers. A fanfare of trumpets announced the coming of the parade and slowly the elaborately decorated machines circled the hall amid the enthusiastic applause of the throng.

After the vehicles had made the circuit a number of times the judges, among whom was Baroness A. Von Haake, announced that the first prize, a tall silver loving cup, would be given to Martin Kastle, the well-known publisher. Mr. Kastle and his wife drove a machine which was one mass of pink roses and carnations arranged in the most tasteful manner and perfect in its simplicity and elegance. To Mr. Beck, of the Mobile Co., whose companion was Miss Rupp, was given the second prize, also a loving cup. White was the predominating

color in the decoration of their machine, surmounting which was a large gilt butterfly. The effect was heightened by having the vehicle drawn by another butterfly.

#### Electric Vehicle Co.

At the extreme end of the hall on the left side was located the largest exhibit of the show, that of the Electric Vehicle Co., represented in this city by the Washington Electric Vehicle Transportation Co. It was practically a duplication of the company's exhibit at the first New York show. An antique iron railing inclosed the stand. Ten iron supports, surmounted by electric globes, gave an artistic tone to the exhibit. Most of the standard patterns made by the company were shown, and these included an opera bus, cabriolet, small victoria, rear-boot victoria, surrey, delivery wagon, wagonette, phaeton and runabout. A gasoline runabout and a gasoline jaunting car completed the exhibit. J. M. Hill represented the company.

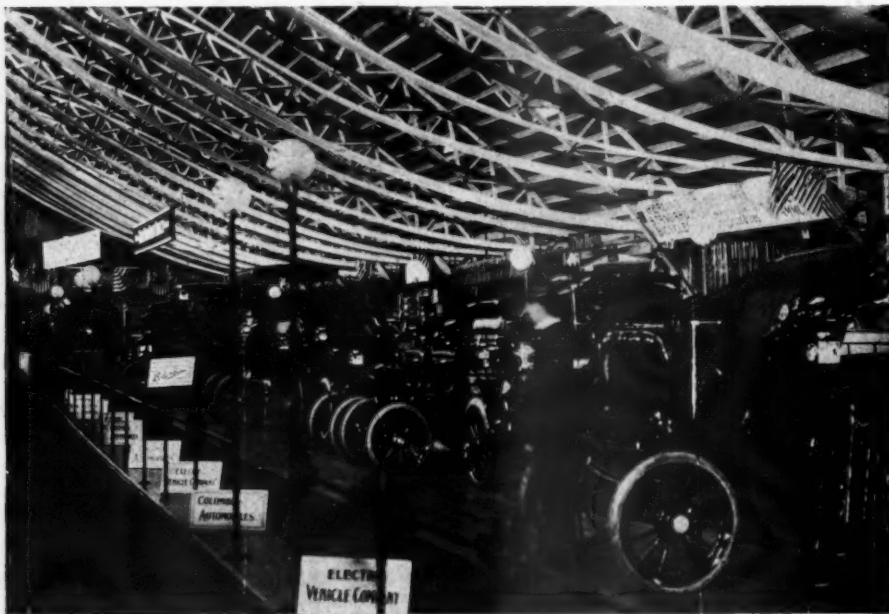
#### DeDion-Bouton Motorettes

A very popular exhibit was that of the De Dion-Bouton Motorette Co., which was located in the center of the hall. A doctor's coupe attracted much attention from the medical fraternity, many members of which attended the show on the lookout for a practical vehicle to take the place of their familiar horse-drawn buggies. Two New York types and one Brooklyn type of Motorettes, a quadricycle and four different sizes of De Dion motors were also shown. A special exhibit, and one that attracted more than ordinary attention, was a New York type of Motorette which C. J. Wridgway brought over from the metropolis, his actual riding time being 17 hours and 50 minutes. This little machine is equipped with a five-horsepower motor. The trim looking vehicles exhibited by this concern invariably caused visitors to pause and listen to Mr. Gelston's lucid explanation of the working parts of the machines. Several prominent business men are bidding for the agency for Motorettes here and it is expected that the matter will be decided within the next few days.

Standing on the broad foot bridge

spanning the track, the first exhibit to catch the eye was that of the American Bicycle Co., which occupied seven spaces directly opposite the boxes and abutting on the track. At each of the four ends of the stand were tall, white columns, each surmounted by an immense plaster eagle with outstretched wings. A large electric sign bearing the name of the company and the makes of the vehicles shown was suspended from the ceiling. The Waverly vehicles

Novelty and beauty in the designs of its vehicles and practicability and efficiency of the motive power were the four characteristics of the splendid exhibit made by the Woods Motor Vehicle Co., of New York and Chicago. Six fine specimens of the carriage builder's art, all designed for private use, comprised the exhibit of this concern, and they probably received more attention from those in a position to pay good prices for vehicles than any other exhibit. In addi-



AN AISLE AT THE WASHINGTON SHOW

shown were a surrey, a stanhope, two road wagons, combination delivery wagon and a brake. A Rambler hydrocarbon runabout and a Cleveland hydrocarbon tricycle came in for a good deal of attention, but the Toledo steam carriage made at the Lozler factory received the most attention, mainly from those who are interested in the development of steam vehicles. W. J. Foss, manager of the local Pope branch, had charge of the exhibit, being assisted by H. S. Whiting and C. R. Hough. Mr. Foss was treasurer of the company promoting the show and rendered valuable service in making it a complete success.

tion to the styles already familiar to the public, such as a hansom cab, brougham cab, road wagon and country wagon, the company showed two of its latest productions, an extension brougham and a Queen Victoria. The latter is very graceful in design and is destined, it is said, to become one of the most popular vehicles made by this company. The one on exhibition was sold before the show was three days old and a number of other orders were booked for future delivery. The company was well represented at the show, those in attendance being J. Wesley Allison, president of the company; E. W. Curtis, R.



A. Green, E. A. Chandler and C. R. Overman. It may be that the company will establish a branch house in this city in the near future, and in the event that this plan is not carried out the agency for the Woods vehicles will be given to some prominent business house, of which there are a number who would like to take on these vehicles.

#### **Locomobile Co. of America**

The display of Locomobiles made by the W. C. Koller Carriage Co., Washington and Baltimore agents for the Locomobile Co. of America, was comprehensive and characteristic. The familiar illuminated arch and oak pillars supporting gilt eagles, used at every exhibition participated in by the Locomobile Co., marked the stand, which was located directly opposite the reserved seat section. All the standard patterns manufactured by this company were shown, and these included a depot wagon for six passengers, two surries, two top carriages, three runabouts and a new type of delivery wagon. Of special interest were a sectional carriage showing the mechanism of the Locomobile engine and the first steam carriage made by the Stanleys. This same vehicle was used by Mr. Stanley in ascending and descending Mt. Washington, which feat he performed on two different occasions. J. McMillan Hamilton represented the parent company at the show and was instrumental in the sale of a number of carriages.

#### **Riker Motor Vehicle Co.**

Among the exhibits of electric vehicles, the line shown by the Riker Motor Vehicle Co., comprising seven vehicles in all, commanded the thoughtful attention of many visitors. The exhibit included two piano-box runabouts, each weighing 1,345 pounds, and having a radius of 25 miles per charge. They are capable of making 14 miles an hour under ordinary conditions and are equally adapted for business or pleasure purposes. A demi-coach was also shown, and although it is a radical departure from accepted design and practice, it met with much favor on account of its graceful and dignified design. Another vehicle shown by this company that received more than ordinary attention was a four-

seat brake, patterned after the horse-drawn tallyho so familiar to many. It is designed to carry twelve persons and is a stylish looking rig, the body, which is mounted on high springs, being finished in dark colors, while the running gear is of a light yellow. The seats are upholstered in drab colored cloth. An electric ambulance, delivery wagon and Victoria phaeton completed the exhibit, which was in charge of D. C. Arlington.

#### **Pennsylvania Horseless Carriage Co.**

An oddity in the shape of a runabout operated by kerosene was exhibited by the Pennsylvania Horseless Carriage Co., Ltd., whose factory is located at 130 Westminster Bridge Road, S. E., London, England. The concern has an office in this city and expects to begin the manufacture of carriages in this country in the near future. In the event that a suitable factory cannot be secured the work of assembling the machines will be given out by contract. The engine used on this vehicle has many good points.

#### **Knox Automobile Co.**

The Knox Automobile Co. had three runabouts in the stand occupied by the Cleveland Cycle Co., which is the local agent for this machine. These natty little machines made a distinct hit on account of the high degree of efficiency attained by the engine with which they are equipped and the readiness with which the controlling lever responds to the operator. H. A. Knox assisted in the work of proclaiming the merits of this machine and converted many people to the belief that for a light, two-passenger vehicle, the three-wheeler as constructed by the Knox company has most of the advantages of the four-wheeler and many additional advantages.

#### **Mobile Co. of America**

The exhibit made by the Mobile Company of America through its Washington branch scored a distinct success. Eleven of the standard patterns made by the company were shown and these included a stanhope, delivery wagon, ordinary carriage and eight runabouts. A special exhibit was a runabout used by Mr. E. L. Weston, manager of the Washington branch, on a 4,000-mile trip which he

made during the summer. Mr. Weston made the trip from New York to New Haven, Conn., in this runabout, the eighty miles being covered in four hours, which is said to be the record for the distance. A number of good sales were made during the week and Mr. Weston

the runabout type was shown in the booth and a similar machine was used on the track for demonstration purposes. J. V. L. Rianhard had charge of the exhibit and he was kept busy throughout the week explaining the mechanism of the carriage. Many former



ONE OF THE EXHIBITS AT THE WASHINGTON SHOW

is of the opinion that the large showing of vehicles made at the show will result in numerous sales.

#### Overman Automobile Co.

A block of space in the southwestern portion of the hall was occupied by the Overman Automobile Co., whose Victor steam carriage has attracted so much attention of late. A single machine of

riders of Victor bicycles inspected the carriage and were loud in their praises of it.

#### Other Displays

Among the other exhibitors were the Rose Mfg. Co., manufacturer of Never-out lamps, the New York Belting and Packing Co. and the Wheel Within Wheel Co.



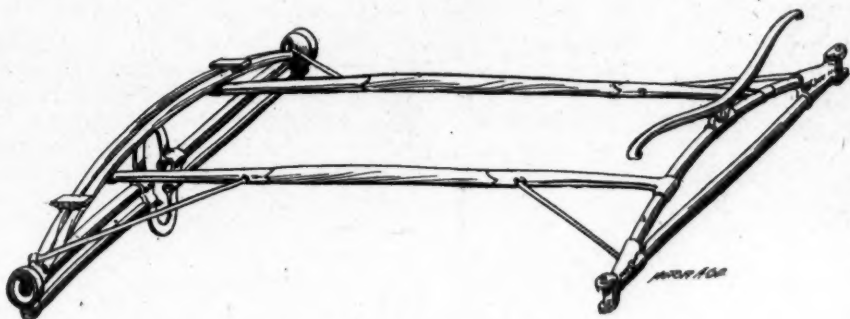
## TWO RECENTLY PATENTED RUNNING GEARS

RECTANGULAR FRAMES FOR VEHICLES—SIDE REACHES OF WOOD USED IN ONE CASE AND DIVIDED STEEL REACHES IN THE OTHER—SAME PURPOSE ACCOMPLISHED BY BOTH—NO OTHER PATENTS ISSUED LAST WEEK

The motor vehicle industry during the last year has been marked by a strong tendency to improve running gears, and this portion of a vehicle has doubtless received more attention at the hands of inventors than any other one particular in the construction of an automobile. At the recent Madison Square Garden show a common sight was the demonstration of running gear flexibility. An exhibitor explaining the peculiar merits of his ve-

nection between the front and the rear axle.

The front axletree is composed of a straight tube and an arched tube, brazed to end sockets, which form the supports for the respective steering knuckles. The arched tube is provided upon its rear side with horizontal tubular sockets slotted at their open ends. Each of these sockets is braced by an obliquely disposed rod having one end brazed to the



PARKER'S VEHICLE FRAME WITH WOODEN REACHES

hicle would often grasp one front wheel and raise it from ten to fourteen inches off the floor in order to show the visitors how well the running gear would adapt itself to uneven road surfaces. This widespread interest in running gears is reflected by the patent office. Among automobile patents issued weekly many running gear inventions are recorded. The only two patents granted last week are for vehicle frames.

### USES WOODEN REACHES

Letters patent No. 663,703, dated December 11, 1900, to Frank R. Parker of Penacook, N. H.; spring frame for automobiles. Six claims allowed.

This patent relates to a simple running gear frame in which wooden side reaches are employed to afford elastic con-

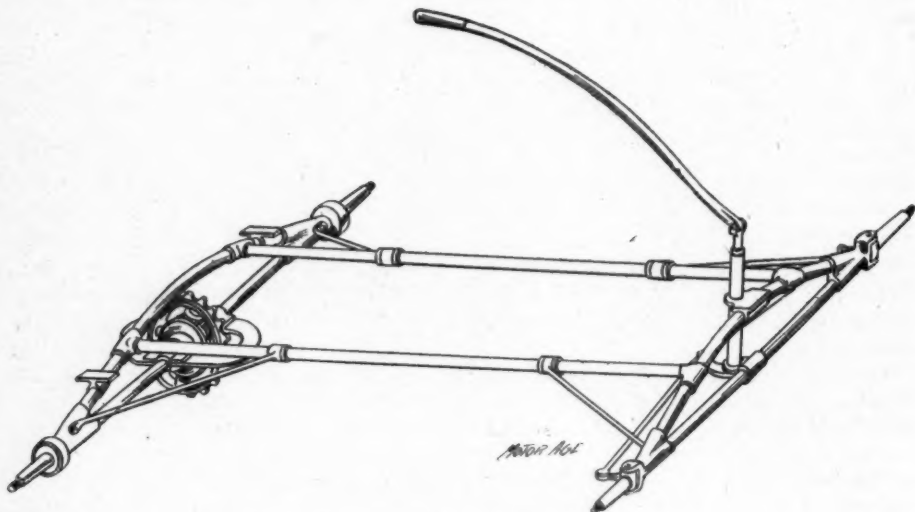
nection between the front and the rear axle. The front axletree is composed of a straight tube and an arched tube, brazed to end sockets, which form the supports for the respective steering knuckles. The arched tube is provided upon its rear side with horizontal tubular sockets slotted at their open ends. Each of these sockets is braced by an obliquely disposed rod having one end brazed to the

socket and the other passed through the end fitting of the truss and retained by a nut. A sleeve at the top of the arched tube has a swivel connection with the front spring of the vehicle body. The rear axle truss is similarly made with the exception that a pair of arched tubes are used instead of a single tube and the straight tube is divided in the middle for the accommodation of the differential gear frame, the latter being braced by a clip or socket secured rigidly to the center of the arched tubes and further braced by supplementary straight rods underneath the main straight tubes of the truss. The rear truss has forwardly projecting tubular sockets like those of the front truss and braced by oblique rods in the same manner. Into these tubular sockets are fitted and bolted reach bars of hickory or other tough

elastic wood, and the reaches thus formed are the only connection between the front and back ends of the frame. It is expected that they will yield and twist sufficiently to allow the two axles to move in vertical planes relative to each other to compensate for rough traveling surfaces. The bolt end connections of the oblique brace rods allow these rods to yield slightly and thus prevent the reach sockets from being broken off by heavy twisting strains, while they also tend to

entail gear frame, which is substantially oval in shape and placed in a horizontal position. The rear axle sections, which run inside the respective portions of the straight tube of the truss, are mounted on ball bearings. The front truss carries steering mechanism of common construction.

Attached to the arched tube of each truss is a pair of clips or lugs which receive the ends, respectively, of the two side reaches. In order that these frame



STANLEY BROTHERS' TUBULAR RUNNING GEAR

prevent the sockets from being bent out of their normal shape and positions.

#### STANLEY RUNNING GEAR

Letters patent No. 663,836, dated December 11, 1900, to Francis E. Stanley and Freelan O. Stanley of Newton, Mass., assignors, by mesne assignments, to the Stanley Automobile Co. of New York City; tubular running gear frame. Eight claims allowed.

The subject of the Stanley patent is a running gear of a type now used commonly for light steam runabouts. Its most essential features are the arched end trusses and straight side reaches. Each end truss comprises a straight tubular axle with an arched tubular member above. The straight tube of the rear truss is, of course, divided by the differ-

members may be made of steel tubing and yet be free to yield that one corner of the frame may be raised relative to the others without causing torsional strain on the reaches, they are each made in two parts, which may turn on each other, but which are retained against longitudinal movement. The preferred construction of the union or joint between the two sections of each reach is to split one end of one section, expand it and then contract it and drive it within the adjoining end of the other section of the reach. The patent specifications state that this construction gives satisfactory results.

Near each end of each rear is a pair of collars, between each set of which is a loose sleeve attached to the end of a light brace rod running toward and attached to the end lug of the truss.



The reaches and axle trusses thus constitute a rectangular rigid frame, the parts immovably attached at the corners, yet parts of the reaches are capable of rotary action to permit any corner of the frame to be raised or lowered without

straining the reaches or connections. Further, the reaches are so connected to the arched members of the axle trusses as not to interfere with any necessary attachments to the straight members of the trusses.

## MANY BIG COMPANIES TAKE SPACE

If at any time there existed in the mind of any one a doubt about the success of the automobile show to be held in Chicago in March it will be dispelled by the announcement of the management that on Saturday last, over three months in advance of the event, about two-thirds of the space was allotted to important people in the trade. Inside of the track only two spaces remain vacant, while the wall spaces have a liberal sprinkling of occupants.

Believing that there will be other applications from makers of automobiles, the management has reserved as much as possible of the space at the north end of the building for their use and has endeavored to group makers of accessories on the west side of the building, where the spaces are comparatively shallow, so as to allow as much frontage as possible.

### Cycle Men First on Deck

It is a noteworthy fact that the first and most enthusiastic applicants for space are people who in days gone by took part in the bicycle shows held under the same management. Their determination to get in on the ground floor this time is doubtless due to their previous experience, which taught them that the present management is familiar with the ways and means of making the show profitable and therefore successful from the standpoint of the exhibitor.

One of the first applicants for space was the National Automobile and Electric Co. of Indianapolis, of which Mr. Dow, formerly a prominent figure in the cycle trade, is the ruling spirit. This house applied for and has been allotted an entire section, containing about 1,300

feet of space, in which it will exhibit fifteen of its electrical vehicles. "We expect," says Mr. Dow, "that you will give us, as a big western concern, due consideration, and we shall be very much disappointed if we do not obtain the space we ask for. We expect to bring a very handsome exhibit and to fix our place up in good shape."

### Will Make Their First Appearance

The Baldwin Automobile Mfg. Co. writes that this is the first show at which it has ever exhibited and that it looks forward to a profitable visit to Chicago. The Remington Automobile Co. will make its first bow to the public at this show and intends to do all it can to assist in drawing the dealers from all parts of the country.

In this connection it may be mentioned that the management has prepared a set of red and blue stickers bearing the words, "We hope to see you at the Chicago automobile show, March 23-30," and "We shall exhibit at the Chicago automobile show, March 23-30," which it will be pleased to supply in unlimited numbers to all who care to use them in connection with their correspondence. In connection with the cycle shows about a million of these were used with the best of results and the attendance of dealers was unprecedented.

### To Open a Big Store

Ralph Temple was the first man who actually filed a formal application for space. This occurred about as soon as the blanks were issued. Temple will be a prominent figure in the industry and in a few weeks will open an establishment on Wabash avenue, Chicago. He already

has a number of good lines, including the Thomas, National Automobile, Century and Eastman.

The Milwaukee Automobile Co. will show running gears and a large display of parts. Motor cycles will be exhibited by the Thomas Motor Co. and presumably by the Waltham company and the De Dion Motorette Co. Tires, motors, bells, lamps, electrical fittings, bearings and complete sets of parts will be shown by a number of exhibitors.

#### List of Exhibitors

The list of makers to whom space was allotted on Saturday is here given:

Remington Automobile Co., Ilion, N. Y.  
Overman Automobile Co., Chicopee, Mass.  
Winton Motor Carriage Co., Cleveland, O.  
E. R. Thomas Motor Co., Buffalo.  
Baldwin Automobile Mfg. Co., Connellsville, Pa.  
National Automobile and Electric Co., Indianapolis, Ind.  
Milwaukee Automobile Co., Milwaukee.  
Ralph Temple, Chicago.  
Century Motor Vehicle Co., Syracuse.  
Moffett Vehicle Bearing Co., Chicago.  
Acme Gasoline Engine Co., St. Louis, Mo.  
Automobile Co. of America, New York.  
John R. Keim, Buffalo.

American Vehicle Co., New York.  
De Dion-Bouton Motorette Co., Brooklyn.  
Olds Motor Works, Detroit, Mich.  
Munger Vehicle Tire Co., New Brunswick, N. J.

Waltham Mfg. Co., Waltham, Mass.  
H. F. Berbeln Co., St. Louis.  
Gray & Davis, Amesbury, Mass.  
Haynes-Apperson Co., Kokomo, Ind.  
Scott & Cooper Mfg. Co., St. Louis, Mo.  
Badger Brass Co., Kenosha, Wis.  
Eastman Automobile Co., Cleveland.  
H. C. Mueller, Milwaukee.  
Bishop & Babcock Co., Cleveland.

Other allotments will be made during the week. The management has received three applications from makers of bicycles, but has been obliged to refuse to allot space, because the show is intended to embrace automobiles and their accessories only, and it is extremely improbable that there will be any space to spare.

Application has been made to all the traffic associations for reduced rates, with a fair prospect of securing a rate of one fare and a third for the round trip. Beyond this a number of excursions are contemplated from various parts of the country.

## NEW GAS ENGINE PRINCIPLE

At the last meeting of the American Society of Mechanical Engineers, held in New York, December 4, a paper was read which presented a radical innovation in gas engine design and one which, if the author's conclusions be verified by experience, may lead to important results in the motor vehicle industry.

The starting point of the scheme of the author of the paper, C. E. Sargent, is the abandonment of the hit-and-miss method of governing. He governs by the control of the admission, but not by throttling, as in some designs. The explosive mixture is admitted freely, but not for the entire length of the stroke. At a point of the stroke determined by the governor, and not later than one-half stroke, the explosive mixture is cut off and beyond that point is expanded to the end of the stroke. On the return

stroke it is compressed, reaching the original pressure as the point of cut-off is found, and beyond that point it is compressed as in the usual engine. From this innovation some remarkable results follow. First the charge after ignition is expanded to at least twice its original volume, with a resulting addition of twenty to twenty-five percent to the area of the indicator card at full stroke. Second, the pressure and temperature at exhaust are reduced, making the exhaust less noisy, and, what is still more important, reducing the average temperature in the cylinder. This the author states is sufficient to permit the successful use of a piston rod and stuffing box—the latter being water-jacketed. On this hinges an entire reconstruction of the engine. Not only is this engine made double-acting, but two tandem cylinders

are used. Each end of each cylinder gives an impulse at every other revolution, the final result being an impulse at every stroke, as in an ordinary steam engine.

Still another use is made of the cut-off feature of the admission to provide a starting device. The engine being turned by hand until the point of cut-off is passed, the charge is immediately fired, an impulse being thus given which is sufficient to start the engine. While being thus started, the action is similar to that of the old Lenoir engine. The

change from the Otto to the Lenoir cycle is made by the simple movement of a lever. The lower compression accompanying a light load and early cut-off requires a corresponding advance to the igniter.

The author considers the engine to be more economical than others at both full and part load, and to have increased range of load within which it will operate. No exhaustive tests have been made to determine these points, but the author hopes to present the results of such tests at the next meeting of the society.

## TO OPERATE PUBLIC CONVEYANCES

A number of Columbus capitalists met last week to discuss matters relating to the Columbus Auto-Cab and Parcel Delivery company incorporated some time ago under the laws of the state of New Jersey. Mr. H. H. Riggleman, of New York, the promoter of the system which it now seems certain will be installed in Columbus, was present, and gave a full and lucid description of the enterprise.

G. W. Meeker read a prospectus. In brief the project is this:

### Novel System of Calls

The object is fourfold; first to establish a system of automobile parcel delivery wagons for business houses, and in connection with this a passenger cab service, a messenger service and a sort of auxiliary express service working in conjunction with the various express companies. The main feature of the whole, and that by virtue of which the enterprise becomes a notable one, is the proposed system of electric call boxes to be put in places of business and private houses throughout the city. By these the subscriber may, by the turn of a key, summon cab, delivery wagon or messenger in a moment. Contracts for six hundred of these boxes with exclusive right of service for ten years, have already been secured with but little effort, and the dry goods merchants es-

pecially are eager to see the system put on foot.

### Another Meeting Soon

It is proposed to establish a five-cent bus service. Mr. Riggleman has patents pending for an ingenious system of electrical communication, to be used in connection with the cab service, and Columbus will be the first city in the world where the system will be put in operation. The chief feature of this plan is the putting of iron telephone boxes at intervals along the street, all of which are to be connected with a central office with which the subscriber is connected. An auto-cab is to stand at each 'phone box and thus the subscriber can, through central, call the cab nearest to him.

The company has been incorporated with a capital stock of \$60,000 in preferred and \$140,000 in common shares. A second meeting will be called in a few days at which a thorough organization is to be effected and officers and directors elected.

### To Assist a Railroad

A line of automobiles is to be operated between Flagstaff, Ariz., and the Grand canon of the Colorado in connection with the Santa Fe railroad. The first of the new automobiles was shipped from Chicago last Thursday. The automobile is of the gasoline type and will

carry nine persons. The cost of the first one was \$3,000. The distance from Flagstaff to the objective point on the canon is about sixty miles. It is planned to cover the distance with the horseless carriage in seven or eight hours. The automobile line is not intended to supplant the Santa Fe and Grand Canon railroad that is now nearly finished, but to be auxiliary to it, affording travelers a choice of routes.

The Huntington, Pa., council has passed an ordinance giving to the Union Passenger Automobile Co., of Weedsport, the right to operate vehicles for passenger traffic.

The Automobile Bus Co. will ask the Philadelphia council for permission to run self-propelled vehicles on Broad street, one of the finest stretches of asphalt in the world.

Two automobiles are being constructed for passenger service between Columbus and Bloomington, Ind., by way of Nashville. They are to make two trips daily.

Operators of automobile stage lines are gradually figuring out the necessary

charge per passenger per mile. A concern in Indiana has decided on a rate of two-and-a-half cents. These gentlemen are D. Ogden and George Durnall, of Nashville, Ind.

#### Stage Lines in Idaho

The Chicago Tribune is responsible for the statement that an automobile stage line is to be operated in Idaho by E. A. Readicker who operates a line between Challis and Salmon City and another between Dubois and Ellis. Mr. Readicker has employed an automobile in carrying mail and intends to buy others to carry both mail and passengers. The trial runs have been made between Dubois and Ellis, a distance of 150 miles. The road runs through sand and dust, over hills and through the heart of the Salmon River mountain. The automobile plowed through the sand, climbed the hills, and sped over the level places without a mishap at an average of ten miles an hour. The vehicle used for the experiments is single-seated and is fitted below with a frame for carrying mail. Gasoline furnishes the driving power.

## MECHANICAL NOVELTIES AND NEW VEHICLES

### HOLLEY'S LATEST MOTOR BICYCLE

The Motor Age recently published an illustration and description of a motor bicycle manufactured by the Holley Motor Co. of Bradford, Pa., and which was distinctive because of the arrangement of the motor at the crank or bottom bracket of the frame. The motor crank box was so constructed that it could be attached to the side of the bottom bracket of an ordinary, standard bicycle frame. The machine had no pedal cranks and was started by running it along and then mounting after the first few explosions had occurred.

Since the introduction of that machine the Holley company has brought out an improved model in which the motor crank box is built into the frame and utilized as the bottom bracket. The regular pedal crank shaft is carried by a

supplementary hanger attached to the front side of the motor crank box. The machine is thus equipped with pedal drive by which it may be started, and which may be employed to assist the motor when climbing extraordinarily steep inclines.

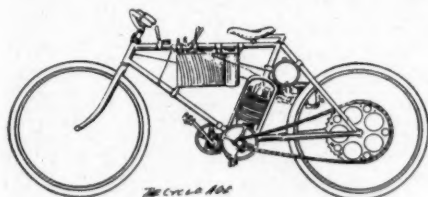
The first of the accompanying illustrations shows the general appearance of this motor bicycle. The machine weighs 74 pounds and is fitted with a  $1\frac{1}{4}$  horsepower motor. The gasoline tank holds two quarts of fuel, which is sufficient for a run of sixty miles over good roads. The Holley company states that it expects to soon be able to manufacture these machines in lots of twenty per day.

There was recently described a motor bicycle for which application for letters patent had been made and whose distinctive feature was the in-



corporation of the motor crank box into the frame.

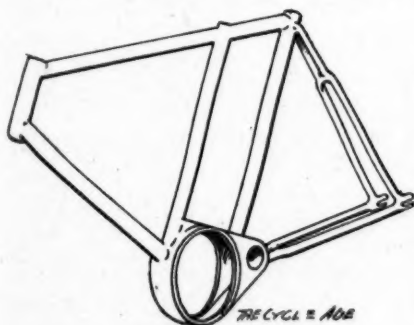
The motor casing was described as being built into the frame to take the place of the usual bottom bracket, with the bearings for the pedal



The Holley Motor Bicycle

crank shaft mounted in an extension at the rear of the motor crank box. A double seat mast was specified whose two parallel tubes ran straight to the top of the frame, leaving room between them for the motor cylinder and a casing to contain some of the motor appurtenances. This frame is presented in the second of the accompanying illustrations.

On October 25 application for a design patent for the motor bicycle frame shown in the third illustration herewith was made by George M. Holley of the Holley company. The similarity of the two frames is apparent, although the Holley frame is different to the extent that the seat mast is forked, and double only for the lower portion of its length. Also, in the Holley frame the pedal crank hanger

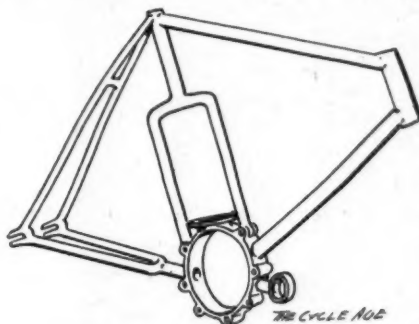


Almost the Same as Holley's

is in the form of a forward extension neck.

The almost simultaneous invention by separate parties of substantially the same thing is interesting of itself and is no-

table because the invention embodies in both cases the seemingly most desirable method of motor support for motor bicycles. Furthermore, the case illustrates the fact that apparently small and immaterial points in design frequently lead to results of no inconsequential nature. It really makes no difference in the matter of propulsion of a motor bicycle whether the pedal crank shaft is in front of or behind the motor shaft, but when it is in front, as in the Holley frame, the wheel base of the bicycle must be from six to eight inches longer than that of the standard bicycle. If, on the other hand, the pedal crank shaft is behind the motor shaft, the wheel base and lines of the frame may be exactly the



Holley's Motor Bicycle Frame Design

same as those of the standard bicycle.

Mr. Holley has also secured a separate design patent for the crank box employed in his frame.

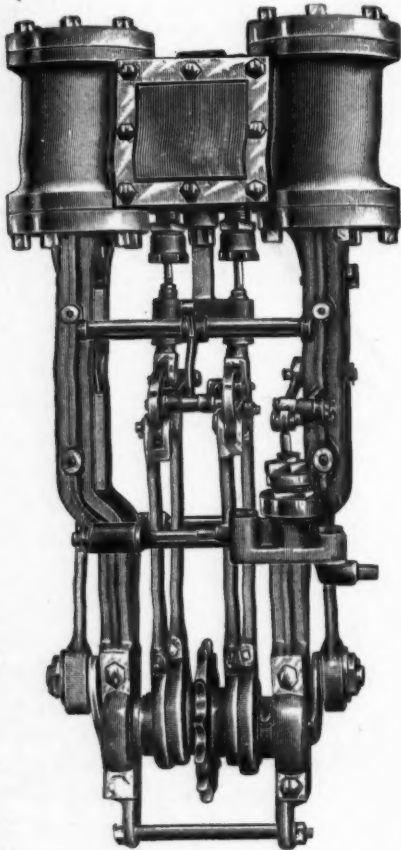
#### DAYTON CONDENSER AND BURNER

While the Dayton Motor Vehicle Co. of Dayton, O., is manufacturing steam runabouts, to which it is expected to add a line of light and heavy steam delivery wagons, the Dayton steam engine, boiler, burner and steam condenser, which form striking features of these vehicles, will be sold separately to other vehicle builders.

The Dayton engine is shown in the accompanying illustration. It has a  $2\frac{1}{2}$  by  $3\frac{1}{2}$ -inch stroke and is said to develop from 4 to 6-horsepower. The frame is of gun metal. It has no ball bearings, but each bearing is provided with brushings which allow take-up for wear. The

company is prepared to furnish the parts of this engine with blue prints so that any machinist can erect it.

The condenser for converting the exhaust steam into water is made of thin sheet steel and fastens on the front of the carriage directly forward of the front axle. It is about 1 inch thick and less than 8 inches wide and is enameled "au-



Dayton Steam Engine

tomobile" red. The exhaust steam enters it at the top through a rubber hose extending under the vehicle body from the engine. After traveling over 320 feet of condensing surface the condensed steam, or water, and the small amount of steam which does not condense, passes out through a series of 300 fine holes in the bottom of the condenser. These holes extend in a line reaching nearly from one front wheel to the other, so that the

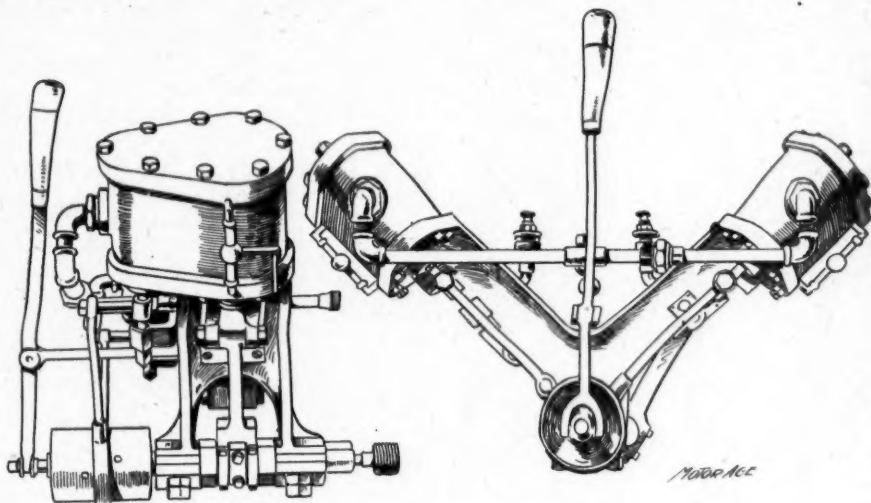
little steam which might pass through the condenser will be broken up escaping through these small holes, and thus, becoming mixed rapidly with the atmosphere, will become invisible before the carriage has passed over it.

The peculiarity of the Dayton burner is that it has no small holes for the gas to come through as it burns. Instead, it is provided with complete annular orifices, which can be regulated to give as little or as much gas as is required. If desired, the user can replace the small "tip" rings which regulate the burner openings with a different set, which will afford solid in the place of circular flames. It is averred that the burner cannot burn backward, as the orifices through which the gas passes to the flames are so narrow that the flame will become extinguished before it will burn back.

The lighting device is not a crook, loop, lump of copper or saucepan for alcohol. It is simply a gasoline retainer holding about a teaspoonful of liquid gasoline. This retainer can be swung out to one side, cleaned, filled and pushed back to its normal position, a match being then applied. After a few minutes the burner is heated sufficiently for regular generation of vapor. There is but one operating valve and its handle stands out to the side of the burner about ten inches, so that there is no liability of burning the hands when manipulating it. The pilot light is inside a metal housing intended to keep the wind from extinguishing the light. This pilot light may be burned all of the time or shut off as desired. The burner is so constructed that if a person carelessly opens the valve and is not ready to light the burner the liquid gasoline while flowing out will fall directly to the ground instead of flooding the burner. The base of the burner is little affected by the heat of the generator and can be readily removed from the carriage, cleaned and replaced without disturbing any of the other parts. It is also claimed for this burner that it heats all of the boiler tubes alike and does not leave the outside tubes cold. The boilers are made of seamless copper tube, wire wound and

having steel heads and copper flues. They are provided with an arrangement to prevent burning in case of low water.

the armature shaft of electric vehicles. It has but a single row of balls in each end, with a central two-face cone and



TUCKER-DODSON AUTOMOBILE ENGINE

In addition to the above specialties for steam vehicle construction the Dayton concern is ready to supply numerous small articles and appurtenances which are shown and described in a recently issued catalogue.

#### BAKER BALL BEARINGS

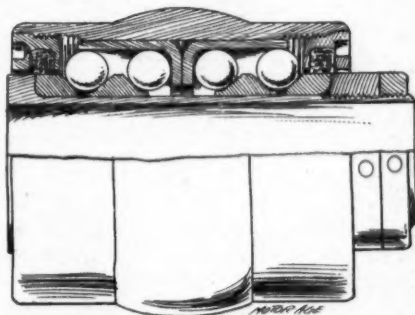
The accompanying illustration shows one pattern of the "self-aligning" ball bearings manufactured especially for automobile use by the American Ball Bearing Co. of Cleveland. The bearing illustrated is designed for vehicles having revolving rear axles. This bearing, as well as others of the company's line, is independently adjustable. The ball races are faced outward and the double bearing is provided with end cones. One end cone is stationary, while the other is slidably mounted and adjustable by means of an adjusting nut with locking ring. Between the two rows of balls of each side of this bearing is a sliding two-face cone. It is stated that the cups and cones of all bearings are ground to gauge after hardening. Felt washers are used for dust proofing.

The company makes another pattern of this bearing especially intended for

inwardly facing cups, one of which is adjustable.

#### TUCKER ENTERS AUTO FIELD

J. B. Tucker, the wood-rim man of Urbana, O., is financially interested in a new motor vehicle engine, of which the patentee is H. L. Dodson of Chicago. The motor may be operated with either compressed air or steam. It has not yet



Baker Double Hub Bearing

been fully decided which power medium will be preferred in the introduction of the engine.

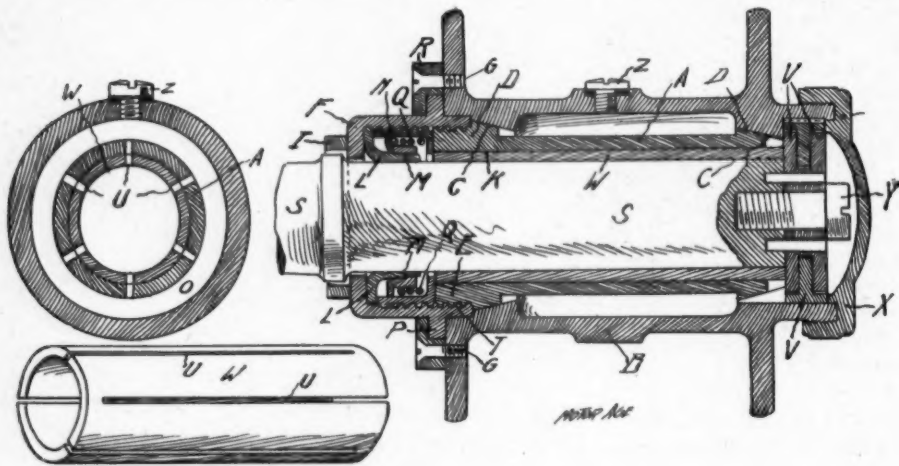
The chief peculiarity of the Dodson engine is the arrangement of the slide

valve mechanism. By placing the two cylinders at a wide angle to each other instead of parallel, as in the ordinary marine type engine, but one crank is necessary and a single, sliding eccentric contrivance governs both of the balanced valves. This eccentric mechanism is entirely inclosed within a small cylinder on the crank shaft and is operated di-

pounds and it is expected that commercial patterns when completed will scale less than this figure.

#### OIL RETAINING BEARING

An adjustable parallel bearing, especially adapted to automobile and other vehicle wheels, is being introduced by



MILLER'S OIL-RETAINING HUB BEARING

rectly by the hand lever. This arrangement of cylinders and construction of working parts affords exceptional simplicity and rids the engine of many parts common to other styles of motor. Through the lever the engine may be reversed or the stroke of the valves changed when the throttle is wide open, and these changes are accomplished quickly and without shock.

Round metal joints displace soft packing in this engine and all of the wearing parts are provided with take-up devices. It is said that the working model, which has a cylinder bore of 3 inches with equal stroke, has under test developed 6 brake horsepower with 6.66 indicated horsepower.

A Motor Age representative recently watched the engine while it was being driven by compressed air. It ran steadily and quietly without a fly wheel and the cut-off, reverse and stroke control effected by the operating lever was delicate and quick.

The entire engine weighs about fifty

Miller Bros., 683 Tenth avenue, New York city. This bearing, which is the invention of Theodore Miller, in the form of a wheel hub is shown in the illustration herewith.

The hub barrel H forms an oil chamber around the axle. It has two conical seats C into which fit the male cones D of the adjusting sleeve A. The latter surrounds the longitudinally split bearing sleeve W on the shank S of the axle. The head E of the adjusting sleeve A is engaged by the threads T of the adjusting nut F, which is held on the hub by means of a ring R, provided with screws G G and packing rings P P, so as to form a tight joint.

To the inside of the adjusting nut F, is clamped a cuff packing ring L, of specially prepared, oil-proof leather. The conical lip M of the leather packing L is pressed to the axle by means of the metal ring N, which is forced forward through the spring Q so as to tighten the leather packing and to take up for wear automatically. The wearing sleeve W and



the adjusting sleeve A are prevented from turning by a key K.

When the bearing sleeve becomes too loose, it can be easily readjusted for wear. This is accomplished by applying a wrench on the head I of the adjusting nut F, and by turning the latter until the adjusting sleeve has sufficiently advanced in the cones C, to cause the split bearing sleeve to tighten around the axle. The adjusting sleeve A, and the wearing sleeve W, are capable of diametral compression because of the slots U, which are arranged alternately, running from one end of the sleeves nearly to the other end and vice versa.

The end of the axle S is provided with the end thrust washers V, which embrace the thrust ring X, and can be adjusted for wear by means of the screw Y.

The hub is completely filled with oil through the hole closed by the screw plug Z. One charge of oil, it is stated by the inventor, will last from two to five years. When the bearing sleeve is

or cup form make an air tight joint, and by their adaptation to the Miller bearing the air is excluded from the charge of oil and thus the lubricant is prevented from oxidation and preserved for a long time in a fluid condition.



#### BUILT IN A REPAIR SHOP

That many of the enterprising bicycle repairers of the country are preparing to enter either the automobile or motor bicycle business is beyond doubt, for frequently come reports of practical work in this direction having been accomplished by these mechanics. T. H. Bolte, who is proprietor of a thriving bicycle establishment at Kearney, Neb., has been industriously plying his spare time during the past eighteen months in the erection of a gasoline carriage of his own design and mainly of his own construction. The completed vehicle, which has now been in successful operation for two weeks, is here illustrated. It is now fitted with a 2 horsepower motor, al-



BOLTE'S REPAIR-SHOP-PRODUCED AUTOMOBILE

worn out, it can be easily replaced at trifling cost.

It is a well demonstrated fact, says Mr. Miller, that leather packings in cuff

though Mr. Bolte expects to substitute one twice its size.

The entire vehicle, with tanks full, weighs 655 pounds. The rear wheels are

30 inches in diameter while 28-inch front wheels are used. Roller bearings are used in the rear and ball bearings in the front wheels. The axles are hollow. The body frame is of angle steel. The power transmission from motor to compensating gear, which is on the counter shaft, is by means of a 2-inch belt. Two  $\frac{3}{4}$ -inch chains drive from the counter shaft to the rear axle. A belt tightener operated

by the brake lever is used to throw the power on and off. The gasoline tank is carried on the front of the dash. Mr. Bolte states that in building this carriage he made his own spokes, nipples, hubs, roller and ball bears, compensating gears, body, running gear, etc. No brazed or welded joints were employed in the construction of the running gear of the vehicle.

## FROM THE FOUR WINDS

### AMERICAN MOTOCYCLES WANTED

A gentleman employed at the Brussels depot of the European Dunlop Tire Co. writes as follows to a Chicago friend concerning motor bicycles:

"Are they starting to make motor bicycles in America at a reasonable price? There are a few here, but are too expensive. An American house which would bring on the European market a good motor bicycle of one horsepower, at a reasonable price, say 400 to 500 francs (\$80 to \$100) wholesale, could make a lot of money. As for myself I would certainly buy one for my own use at such a price. Equipped as they are, some of the U. S. houses should not find it difficult to place machines of about such prices on the market. What do you think about it? Anyhow, I wish you would give me information."

While it is improbable that American manufacturers would at the present stage of the industry find it profitable to manufacture motor bicycles to sell in Europe for \$100, it is equally apparent that the continental market affords considerable trade opportunity. Despite the chances, however, the best field of exploitation of the American motor bicycles is America. There are plenty of buyers in this country and few machines to sell them. To export machines which are really experimental models is dangerous and expensive practice. While there is a welcome market at home the risks of "trying out" new motorcycles abroad should not be considered.

After over twenty years of hard experience in bicycle building we still find it difficult and exacting work to satisfy the European trade. Motor bicycles present a hundred mechanical difficulties to every one of the bicycle. The motor industry is young. To multiply risks of a mechanical nature, assume responsibility for brand new types of goods and seek expensive markets when cheap ones are in waiting would be reckless business policy. Studious conservatism should be the keynote of motor bicycle progress in this country. The European fields which are now open will always remain open for American goods if American goods retain their reputation for excellence. Let us have motor bicycles rather than new motor bicycle markets—at least until we know better what we have to sell. Thanks, however, to the invitation from Europe.

### HAS NEW CLUB QUARTERS

The Automobile Club of Brooklyn moved into its new quarters at the Hotel Clarendon December 10, the occasion also being that of the first annual election of officers. The meeting was marked by a profusion of roses, champagne and cigars.

The following officers were elected:

President, Edward J. Bergen; first vice-president, R. Holcomb Jones; second vice-president, Dr. W. M. Hutchinson; secretary, C. Benton Dix; treasurer, C. H. Tangeman; consulting counsel, Joseph J. Robinson; board of governors,

Edward J. Bergen, R. Holcomb Jones, Benj. F. Tyler, Dr. Clinton B. Parker, Frank D. Maltby, C. H. Tangeman, Dr. Wm. M. Hutchinson, Edgar W. Merse-  
reau, C. Benton Dix.

The new board of governors met December 12 and appointed the following standing committees:

Membership committee: Dr. DeWitt L. Parker, Dr. J. O. Polak, Joseph Gardam; house committee: Dr. Clinton B. Parker, chairman, John F. Oltrogge, D. Irving Mead, J. I. Bergen, Willis M. Follmer; tours, runs and exhibitions: Frank D. Maltby, chairman, Ch. H. Tangeman, DeWitt L. Parker, Theodore Heilbron, Edward J. Bradbury, Eugene La Grove, Henry Hyatt; laws and ordinances: James C. Church, Edgar J. Bergen, Joseph J. Robinson; auditing committee: Clarence E. Smith, Edward H. Bancker, Edward C. Boyce.

#### NOTABLE CROSS-COUNTRY TRIP

German and Austrian papers of all kinds are giving much space to the trip, during the recent Austrian military tournament, of a motor vehicle driven by its maker, August Walndorfer, an engineer, and Captain Wolf of the Austrian general's staff. They went from Baden, near Vienna, to Perzemysl in Galicia, making extensive detours. The total distance traveled was about 560 miles and was made in thirty-two hours. Twice they were forced to ascend the Carpathian mountains and once the mountain chain of Tartar, sometimes climbing to a level of 1,000 meters, and continually climbing ten percent grades. In addition to its three passengers the vehicle carried 880 pounds of baggage, and on the entire course only one-half hour was lost, this single stoppage being caused by a puncture.

#### CLUB WANTS SUPPLY STATIONS

The Westchester Automobile Club has lately been formed by a number of wealthy men who own country seats in the northern part of Westchester county, N. Y. It contemplates the establishment of a number of supply stations on

the principal roads. Among the members are Howard Willets, one of the organizers; Paul Gibert Thebaud, Percy Chubb, Sidney Chubb, W. K. Vanderbilt, W. K. Vanderbilt, Jr., Worthington Whitehouse, George Fordyce Leith, Henry Graef, J. Scott McComb, E. S. Reynal, General George M. Smith, Oliver Harriman, Jr., J. Dunbar Wright, Albert C. Bostwick, Bradford B. McGregor, F. W. S. Cochrane, and Frederick W. Geissenhainer.

#### POSTAL VEHICLES WANTED IN FRANCE

It appears that the French post office department is not unwilling to replace its horse-drawn vehicles with automobiles. Mr. Dubois, who is the "concessionnaire" of the postal vehicles in Paris, has announced that he is ready to try a vehicle of the following description: A "tilbury," of high body, carrying a mail box or case, cubing exactly 1 meter, 25 centimeters, and being able to carry a weight of 700 kilos in addition to its own, including the weight of the two men operating the vehicle, these being the engineer and the mail carrier. Mr. Dubois is willing to give \$1,600 for such a vehicle. The Velo says regarding it that it is really pitiful that the French industry should be so slow to take profit of such an offer, while a German maker has already offered such a vehicle for \$1,500, including transportation and duty, and now even offers to rent such a wagon for \$150 a month, including the engineer. Only one French maker has made anything in the line of a postal vehicle and it really is a voiturette, and has not even been presented yet.

#### 1000 MILES WITHOUT A STOP

A successful attempt to run a gasoline vehicle 1,000 miles without stopping the engine was recently made at the Crystal Palace track, London. The track is one-third of a mile in circumference, splendidly banked and of cement, so that the conditions were favorable. The principal difficulty with which the operators had to contend was the unusual cold.

Two vehicles started, the larger one having 8 horsepower and the smaller 5

horsepower. The carbureter of the larger vehicle became quite frozen during the first night, and compelled a stoppage. The smaller vehicle went through without the motor being once stopped, although on two occasions the vehicle had to be brought to a standstill for attention to the tires, the engine running the whole while, and the thousand miles were completed in 48 hours 24 minutes and 4 seconds.

After the stoppage of the larger vehicle an overcoat was placed over its bonnet, and it was started again, and successfully run through for 1,000 kilometers, a trifle over 621 miles, without a stop, in 24 hours 54 minutes 17 seconds.

#### LECTURES TO AUTOMOBILE CLUB

The Long Island Automobile Club has arranged for a course of six lectures, to run throughout the winter, on every other Wednesday, the first to take place upon a date yet to be fixed. The course will consist of the following:

"Automobile Propulsion by Electricity," William J. Hammer.

"Automobiles," Professor Pupin of Columbia College.

"Gasoline," Professor Sohn of Newark.

"My Experience With the Different Types of Automobiles," Francis R. Upton of Orange, N. J.

"Operating Automobiles," Frederick A. Scheffler, N. E., E. E.

"Scientific Talk on Transmission of Motive Power," by Walter K. Freeman, N. E., E. E.

"My Experience in Automobiling," by Ernest M. Graef.

#### CLUB RUN TO BRIDGEPORT

New York, Dec. 16.—Nine vehicles manned by members of the Automobile Club of America started yesterday morning from Astor court for a run to Bridgeport. The chauffeurs were for the most part garbed in fur coats and the cavalcade presented a picturesque and unusual appearance as they moved swiftly up Fifth avenue. The members grasping the steering rods were: Albert C. Bostwick, D. W. Bishop, F. T. Craven, J. Dunbar

Wright, Robert Graves, Dr. J. Grant Lyman, Winslow E. Buzby, A. R. Hawly and W. S. Irons.

The route was via the Boston Port Road through Mamaroneck, Rye, Portchester, Greenwich and Darim to Norwalk, where the New Yorkers were met by the members of the Bridgeport Automobile Club and escorted to their journey's end. The return was made to-day.

#### THREE QUAKER AUTO CLUBS

Philadelphia, Dec. 17.—This is the only city in the country which can lay claim to the honor of having three organizations devoted to the advancement of automobilism. The latest addition to the list is the Quaker City Automobile Club, and its membership list contains the names of quite a number of Philadelphians long identified with cycling, both as a business and as a sport. Among those who were in at the birth may be mentioned: George D. Gideon, H. B. Hart, John A. Wells, Dr. George Brown, C. C. Hildebrand, R. D. Garden, J. W. Gaskill, W. E. Roach, E. Taylor Kitson, J. D. Loomis, Conrad F. Clothier, Jr., Dr. Keenan, F. L. Donlevy, W. S. Emerson, George W. Robb, William J. Murtha, T. J. Shryock Nicely and Hugh Leng. The new club will be incorporated within a few weeks.

A gentleman, who was recently charged with driving a motor vehicle without a license, was informed by the judge that, during the eleven months he had been guilty of the offense, he had made himself liable for fines amounting to about \$22,000. In reply the man said he regretted that he was unable to pay that sum, whereupon the obliging dispenser of justice let him go on the payment of \$10.

English papers report that nothing but the exhibit of motor vehicles prevented failure of the late cycle shows. The Stanley Club, which holds its show at Agricultural Hall, was allowed by the building people to show fifty vehicles only to prevent interference with the annual automobile exhibit held there.



## HANDLING THE SHOW QUESTION

In accordance with the determination expressed by the gentlemen who gathered to form the National Association of Automobile Manufacturers at New York the secretary has issued a circular to members, relative to the show to be held at Philadelphia in February, which says:

In reference to the automobile show to be held in Philadelphia, at the Second Regiment Armory, February 4 to 9, 1901, your secretary is informed as follows:

That the initial steps for the holding of this show were instituted prior to the formation of the National Manufacturers' Association.

That it is to be held under the auspices of the Pennsylvania Automobile Club; that the track events, entertainment of visitors, etc., will be under the supervision of committees of that club.

That the cost of space to the exhibitor has been figured at a price to cover expenses only.

That the Automobile Club of Philadelphia look favorably upon this show, but are not officially connected with it.

Please notify the assistant secretary as soon as possible whether it is your present intention to exhibit at this show. Upon the receipt of answers from all members, you will be advised of the consensus of opinion of the association.

It may have been wise, and doubtless was, for the manufacturers' association to take any active part in the regulation of shows during the early days of its existence or until efforts have been made to gather in those makers who have not yet become members, but it may be safely assumed that little will be accomplished by the present experiment. That shows are already too numerous every one is aware and, unless the pioneers are willing to sow the seed of which their followers will reap the harvest, such steps should be taken as will insure two shows and no more, and those two of national character.

As matters stand any individual or association has the right to promote a show and induce as many makers as possible to exhibit. The result will be that every maker will fear to refuse because of the fact that his competitor may take advantage of the opportunity to get ahead of him.

The inevitable result will be that shows will be promoted by persons who have not the remotest connection with the industry and, worse still, know nothing of the trade's requirements. No show so conducted can be profitable to the exhibitor. The crowd of dead-heads in attendance will not be the class of people to whom the makers desire to appeal and as a result sales, directly or indirectly, will be conspicuous by their absence.

Plainly then, shows, if any are to be held, should be promoted by people who know the industry, know the class of people to draw and the way to draw them. Incidentally the shows should be so conducted that they will not be an unnecessary drain on the treasuries of the exhibitors.

It may be that in the course of time members of the trade will come to the conclusion that shows should not be held in the same cities every year, but first of all they must find ways and means to limit the number to be held anywhere.

The management of the coming Chicago show will invite the members of the manufacturers' association and others to gather at the Chicago Athletic Club for the purpose of discussing this question. Such a meeting will doubtless result in a large increase of membership and in a discussion which may prevent a recurrence of such shows as prove unsuccessful this season. The attendance will be national in character and this remark applies not only to the men who make vehicles, but to the dealers who handle and sell them.

Dealers and others who expect to attend the Chicago automobile show in March are invited to advise the Motor Age of the fact. The management will be pleased to keep them posted on the latest developments concerning railroad arrangements, entertainments and other details.

## INFORMATION FOR BUYERS AND BUILDERS

### FIFTY-EIGHT YEARS OLD

Established in 1832, the Bevin Bros. Mfg. Co., of East Hampton, Conn., has closely followed the bell trade ever since and is now recognized as in the vanguard of bell makers in many lines. The success which the company has attained in the manufacture of bicycle bells has naturally led to the introduction of the second-cousin product—automobile alarms—and in the 1901 cycle bell catalogue are shown several patterns of motor vehicle gongs. These are of the plunger type to be operated by the foot. Two patterns are double chiming and a third has the electric stroke well known to users of Bevin bicycle bells. The electric stroke bell is made in single and double gong patterns. If desired the company will supply plunger tubes for use with its bells and whereby it is rendered impossible for the plunger to jump out of place. The catalogue in which the automobile gongs are described is known as No. 73.

### THIS TIME FOR MOTORS

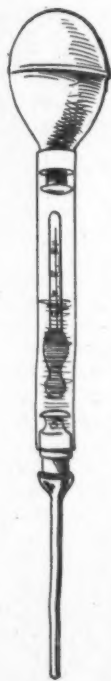
It is said now that it is a most uneventful day when a new use is not discovered for that excellent preparation "3 in 1," put out by the G. W. Cole Co., 141 Broadway, New York city. When this combination of three uses in one was first introduced little anticipation was entertained that a new use a day was among the possibilities. People who buy "3 in 1" seem to be of an experimental turn of mind and are habitually discovering some new use for the "oil right oil for oil purposes." The following letter just received by the Cole company is self-explanatory:

Gentlemen: Enclosed please find thirty cents in stamps for which kindly forward me a three-ounce bottle of your "3 in 1" oil. I used it on high speed electric motors (running 2,800 revolutions a minute)

and the bearings were not even warm. I will soon send for a half dozen bottles. Please send as soon as possible, and oblige, yours, etc., Oscar T. D. Brandt, Electrician, U. S. S. S. Newport, Annapolis.

### THE HYDROMETER SYRINGE

The specific gravity of the acid of a storage battery plays an important part in its efficient working and frequent tests are necessary to determine its condition. Before the containing jars of the cells were reduced to the small compass necessary in an automobile it was customary to have a hydrometer floating in the solution where there was plenty of room for its free adjustment to the variation in the strength of the electrolyte, and an easy reading made.



That this is impossible in the tightly built automobile cells is apparent, and to overcome this difficulty the Hydrometer Syringe has been designed. By slightly compressing the bulb and inserting the slender tube through the vent hole in the cover of the cell sufficient acid may be drawn up to float the hydrometer within the large glass tube and the reading

made at once. The acid is returned to the same cell, and the reading of the next is made. The laborious method of drawing out sufficient acid by a common syringe is avoided, as well as the general uncleanness of this method.

The Hydrometer Syringe more than accomplishes this purpose, as it may also be used to add fluid to the cells, or it may be used in the preparation of the acid

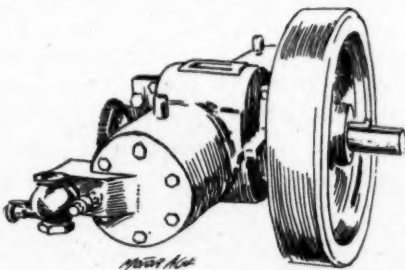
solution. It is manufactured by The Storage Battery Supply Company, 239 East Twenty-seventh street, New York city.

#### BIG AS A BUSHEL BASKET

This illustration shows the relative size of the oil cup and burner used in the vehicle oil lamps manufactured by Gray & Davis, of Amesbury, Mass. Its size is a guarantee that it will not be necessary to fill it every night. Another feature to which the company calls attention is its one-piece construction of brass, which obviates leakage and rusting. This oil cup is fitted to the company's "Mobile Special" lamp, which is designed for light carriages. Although it makes many patterns of lamps the Amesbury concern is just now especially attracting notice to its "Locomotive Headlight," so named because of its resemblance to the railway light. It is made to be placed on the front of the carriage and affords all of the light necessary without assistance from side lights. It is made in three patterns, operated, respectively, by oil, electricity and acetylene gas. The silver reflector is said to throw an exceptionally powerful light.

#### NEW GRANT-FERRIS MOTOR

The accompanying illustration shows a Howard special four cycle motor designed for automobile purposes and manufactured by the Grant-Ferris Co., of Troy, N. Y. This particular size is especially adapted for small runabouts of



New Howard Four Cycle Motor

from five to nine hundred pounds weight. It is what is known as the horizontal type of balanced motor having opposed

cylinders. The bore and the stroke are each 4 inches. As the valve gear and proportions of the engine are well carried out, these little motors, it is asserted, often exceed their rated power. The crank shaft is of forged steel and connecting rods of bronze, semi-hollow, the channel being used to feed oil not only



Gray & Davis Lamp Burner

into the wrist pin but to the crank pins. The rotating parts are arranged to dip in oil. The circular top of the crank case can be removed by unscrewing two small screws, giving access to all of the working parts. The weight of the engine without fly wheel is 110 pounds. Fly wheels are furnished from 14 to 18 inches in diameter, varying in weight from sixty to one hundred pounds, as desired.

This motor is provided with variable jump spark or with a Howard cushion make and break spark. The motor is provided with small carbureter, or a vaporizing valve, as preferred by purchaser. This is a type of motor that can be readily attached to the vehicle body, making it possible to have rigid connections between gasoline tank and motor and motor tank.

#### MUNGER QUALITY IN NEW FORM

New Brunswick, N. J., Dec. 12.—The man who wrote in the advertisement of

The Munger Vehicle Tire Co. "If it is a Munger it is all right" only emphasized a fact which is well known to all those who have studied the Munger productions of the past. A good many remember the first light Munger bicycle, which skeptics and nervous people declared would not carry a person safely. Their statements were soon confounded, as the heaviest of people bounded along on Munger bicycles and no less a personage than F. W. Morgan, of Chicago, declared the other day that he had one of the early Munger bicycles and that he would not part with it unless he was sure that he could get another just like it. But it was a Chicago man also, who tried the Munger quality in a way that surprised both himself and those who heard of the trial.

The man was a well known doctor, who had to make a call in an outlying district of Chicago and was riding his Munger in a dark portion of the city, and had taken to the sidewalk, as the streets were poor. He came to a portion of the sidewalk which had given way and had fallen into a four-foot ditch, formerly spanned by it, and not seeing his danger, the doctor went through the gap and landed in a sitting posture on his wheel at the bottom. The doctor told the writer the story and told how he dragged his bicycle to the light of a lamp, expecting to see the frame injured, but to his surprise, he found the bicycle entirely free from damage. It was the greatest testimonial that any bicycle manufacturer could wish.

So when it was announced, about a year ago, that L. D. Munger had invented a vehicle tire, the old guard of the bicycle trade with one breath declared, "It will be all right." Thus, the other day, when the writer reached New Brunswick, he was prepared and expected to find the Munger Vehicle Tire Co. going in full blast. Fred. S. Dickinson, who has always followed the Munger fortunes, was found in the business office of a large building, formerly occupied by the New Brunswick Tire Co., and Mr. Munger soon put in an appearance and piloted the Motor Age man through the factory. A staff of workmen who were busy with the

new moulds for the expansion of the business and a large row of tire-making machinery, including vulcanizers, calenders, etc., showed, beyond a doubt, that the company is fully aware of the demand that is before it. One of the great features of the Munger tire is, that you are sure to get home, no matter how many punctures you get on a trip, and that feature alone will commend it to those who have suffered in the past, through having to make repairs on a journey. Mr. Munger declares, also, that the life of his tire will be found to be greater than any tire ever made and he is willing to stake his reputation on that fact alone.

The facilities which the Munger Vehicle Tire Co. enjoys for tire making and shipping are of the very best and it fully expects to be able to get the greater share of the heavy vehicle business, especially that of trucks and other heavy wagons.

#### AN EXTRAORDINARY BATTERY

Elmer A. Sperry, the well known electrician who is at the head of the automobile department of the Cleveland Machine Screw Co., has secured a patent on a new storage battery of the alkali type. The process of making the battery is described as follows: The oxide or mixture of oxides of lead is intimately mixed with the salt constituents consisting of sulphate and phosphate of one or more of the alkali basis, potassium or ammonium preferred. This mixture is then moistened with distilled water and is mixed thoroughly with finely-divided metallic lead—such for example as precipitated lead, which, after precipitation, should be kept in a suitable vessel under water until used. The mixture is diluted until it reaches the consistency of thick dough, and while being vigorously stirred, there is added a solution of hydroxide of an alkali metal—such, for instance, as liquid ammonia diluted to from three-fifths to one-fourth with distilled water. When the mass has been thus thinned down to a condition which permits it to be readily spread over a conducting plate or grid, it will be found



to have the property of setting, peculiar to cement. It is then applied in any convenient manner to the plate or grid and caused to adhere thereto as a closely-coherent mass compacted by pressure in a mold. The mold consists of a very heavy separable steel frame adapted to contain a retaining grid or support. When the plate or grid with an attached mass of the composition is placed in the mold, it is immediately subjected to heavy pressure in a suitable press, after which it is removed from the mold and set on edge to dry. Mr. Sperry has found that the open air, or the sun's heat is the best means of drying, and that the heavy toggle-press is more suitable than the hydraulic press for this work on account of the more rapid action and the quickness with which the maximum pressures are reached, while with a press of sufficient capacity the final pressures are equal to those obtained in the hydraulic press. When dry, the plates, by the action of an electric current in a suitable bath, are "formed," after which they are grouped and charged in the well known manner to bring the alternate plates or groups to opposite polarities and render them ready for use. Mr. Sperry states that very serviceable plates may be produced by the use of from 80 to 85 percent of finely-divided lead, from 15 to 20 percent of the oxide of the lead, and an admixture of a salt, such as a sulphate of ammonia, amounting to about one twenty-fifth of the entire mass.

The announcement is made that the American Bicycle Co. has secured the exclusive right to use the Sperry battery.

In an interview sent out from headquarters the president of the company is made to say that the new battery is more simple, cheaper, less bulky, and ever so much lighter than anything else on the market; that the life of the cells has been materially increased and that it gives the same energy as other batteries at something less than 29 percent of their weight. The assertion is made that the battery has covered 100 miles without recharging, and that the identical battery which performed this extraordinary feat has been recharged and did the same distance many times over rough and heavy roads. According to the same authority the battery may be charged to 50 percent of its capacity in thirty minutes, and to 80 percent in an hour.

J

#### TESTING REMINGTON AUTOS

The illustration below shows the kind of roads on which the Remington Automobile and Motor Co., of Ilion, N. Y., tests its Remington Standard automobiles. The company is glad that the poor streets of Ilion necessitate such strenuous tests for its motors and machines, as it believes that an automobile should be well able to travel anywhere that a horse-drawn vehicle can go. In one instance a Remington carriage was tested through eighteen inches of snow, the streets of the Remington town being covered with the white power argument to that extent.

The company announces that while it is now marketing vehicles through exclusive agencies it hopes to make its initial bow to the general public through the Chicago automobile show next spring.



Practical Service Rendered By a Remington Automobile.

## NEWS OF THE MOTOR INDUSTRY

### CLEVELAND TRADE MISCELLANY

Cleveland, Dec. 17.—It is, quite possible that the Hoffman Bicycle Co. may remove to some other city. The fact that it has decided to go into the manufacture of steam motor vehicles necessitates a change, as it is desirous to increase the capital of the company as well as the facilities. President L. E. Hoffman stated today that he had recently been in correspondence with capitalists in several cities relative to a location for a factory, and although nothing had yet been settled, it is very probable that such a change will be made.

Mr. Hoffman recently made a proposition to the board of trade of Warren, Ohio, which it is possible may be accepted. He offered to establish his factory in that city for a three-acre site, \$100,000 bonus and \$100,000 more in stock subscription. He has not yet heard from the members of the board.

The Hoffman Bicycle Co. evidently contemplates a removal to New England, for a few evenings ago a meeting was advertised, to be held at the opera house in Laconia, N. H., for the purpose of considering an effort to secure the location of the plant there. The particular business of the meeting was to ascertain how much money could be raised by local business men as an inducement to the company to remove from its Ohio home.

At the meeting above referred to the Opera House was well filled, and a committee was appointed to confer with the management of the Hoffman plant and ascertain its plans. It is reported from another source that the Hoffman company expects to obtain a very large bonus, and that the people of the town to which they move will subscribe for one-half of the stock of the company to be formed.

The White Sewing Machine Co., which has been experimenting with steam vehicles for a number of months, is still undecided as to its future in the busi-

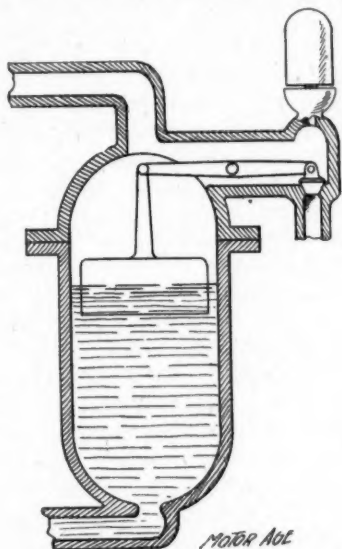
ness. It has built three vehicles and is at work on several more, but it is quite possible that it may decide to drop the production of complete vehicles in favor of boilers only. Rollin White, who is superintending the experiments, has recently built a new boiler said to involve wholly new principles, and which has thus far shown some surprising results. As he has not yet obtained patents on the new feature, he is unable to go into details, but it is stated that the boiler flues will not burn out under any circumstances. Should further experiments prove satisfactory it is probable that the company will confine its efforts to the production of boilers only.

Automobile manufacturers desiring to secure machinery adapted to their purpose, at a low figure, can secure a description of an excellent assortment of tools offered for sale by George H. Bowler, 513 Williamson building, Cleveland. Mr. Bowler is a well known second hand machinery dealer and he has recently made arrangements with the American Bicycle Co. to dispose of a large number of machine tools made unavailable by the dismantling of plants at Buffalo, Indianapolis, Elyria, Geneva and Jackson, Mich. The tools include lathes, planers, hub machines, milling machines, shapers, and considerable automatic screw machinery, besides leather forming machinery from saddle plants. Mr. Bowler will dispose of as much as possible by correspondence and later will hold sales at the places mentioned. He also has a large assortment of tools at his warehouses at Pittsburg and Cleveland.

The Cleveland Automobile & Supply Co. is broadening its scope by going into the manufacturing business on a small scale. Its first efforts in this direction will be the production of a safety device for boilers. It consists of a heavy brass cylinder which is connected to the boiler at top and bottom so that the water stands at the same level in the boiler

as in the cylinder. The cylinder is provided with a float which, when the water reaches a certain low level, opens a valve to a whistle which is operated by the pressure of the steam. The whistle may be adjusted to give any desired tone and the lever to the float is also adjustable. The device is made of brass throughout and it can be fitted to any boiler with little trouble.

A prominent local dry goods house has a novel advertising wagon on the streets



New Boiler Safety Device

this week. It is an electric delivery wagon upon which is mounted the children's patron saint, Santa Claus, and a tall Christmas tree. The latter is profusely decorated with toys and colored incandescent lamps. The latter are lighted from current from the batteries of the vehicle. The idea was evolved by Walter H. Crauford, salesman for the Cleveland Automobile Supply Co., and one of its Waverly wagons is utilized. The outfit makes a splendid advertisement for both concerns.

A gentleman connected with the Akron Motor Carriage Co., of Akron, which is the successor of the Woodruff Motor Carriage Co., of this city, states that the company has recently increased its force by the addition of about thirty men and considerable new machinery has been put

in place during the past week with more on the way. The company has enough orders on hand to keep it busy for some time, with a large number of inquiries from all over the country.

The Goodyear Tire & Rubber Co. of Akron has placed a contract for the erection of a large office building. Akron papers say it will be one of the handsomest buildings of the kind in the city.

Akron tire manufacturers are constantly figuring on improvements to vehicle tires. Recent patents have been issued to residents of that city as follows: Air extractor for pneumatic tires in construction, August E. Ellenwood; cushion tire for vehicles, John F. McGuire; rubber tire setting machine, William S. Brooks; rubber tire, J. A. Burrows. All of the above will be manufactured by Akron concerns.

Local wheelmen are now able to satisfy their curiosity for the inspection of a motor cycle. The Rambler A. B. C. branch is showing a Cleveland motor tricycle and Davis, Hunt & Collister have just received an Orient motor bicycle. The latter is attracting much attention.

D. J. Folsom, of the Folsom Arms Co., New York, and formerly a well known bicycle dealer in this city, was in Cleveland this week showing a new hub for wooden wheel vehicles which he believes will prove of great advantage to motor vehicle builders who prefer this type of wheel.

The Shelby Steel Tube Co. is making a number of improvements at its various plants, notably at Toledo. The improvements at this point will double its capacity. A temporary structure 60 by 60 feet is now being built, and as soon as the necessary structural iron can be obtained, a large building will be erected. A tract of land, 200 by 840 feet, adjoining the present plant has been secured for this purpose. Extensive improvements are also under way at Ellwood and Greenville, Pa., and considerable new machinery is being installed at Shelby. The demand for automobile tubing is proving quite an important factor in its business.

The immense plant of the Brown Hoisting & Conveying Co., one of the largest

industries in Cleveland, was almost entirely destroyed by fire Monday morning. The factory of the Elwell-Parker Electric Co., which is closely identified with the Brown company, manufacturing all its electrical equipment, occupies one of the buildings of the latter's plant and this was entirely wiped out. The Elwell-Parker company is identified with the motor vehicle business through the production of a very successful motor for electric vehicles and which is used by several manufacturers. It has also experimented extensively with electric vehicles, and it was reported some time ago that it contemplated going into the manufacture of vehicles. The total loss to the plant is estimated at \$300,000, but the loss to the Elwell-Parker company cannot be ascertained at this time.

A suit settled at Elyria a few days ago effects several people well known in the bicycle and automobile trades. The South Lorain Bank Co., of Lorain, brought suit against the Lorain Wheel Co., of Lorain, to recover judgment on certain promissory notes held by the bank against the company. The bicycle company claimed that the notes had been executed by the president of the company without any authority, and that the money had been applied in the business transactions of another company formed for the purpose of manufacturing automobiles, rather than in the affairs of the bicycle company. It was further claimed that the cycle company was out of existence. The jury found differently, however, but as the wheel company has no assets, the judgment makes the stockholders liable to the extent of their stocks. Among the heavy stockholders were A. L. Garford, and Harry Williams, of Elyria, and H. S. Jordan, of Cleveland. The judgment was for \$15,000 with interest.

#### WANT REMINGTON TO MOVE

The Remington automobile factory is a much-coveted institution. For some time the people of Herkimer, N. Y., tried to induce the company to locate there, but were unsuccessful. The Remington company practically owns Ilion, N. Y.,

and doubtless feels content to remain there unless some extraordinary inducements are offered it to move. Herkimer has long been trying to raise enough money to make it an inducement and last week a new attempt was started. A meeting was called to ascertain the sentiment of the old subscribers regarding the proposition to reopen negotiations with the Remington company, to the end that the location of the automobile and motor plant might yet be secured for Herkimer. There was a large attendance, and much interest manifested in the action of the meeting. A. B. Steele presided, and George N. Dunham acted as secretary. A motion to the effect that negotiations be reopened was carried by a viva voce vote. A vote taken upon the question of withdrawing subscriptions, resulted 82 shares in favor of and 182 shares against such action. A motion by F. W. Cristman that all those who desire to withdraw their subscriptions be given until Thursday evening of this week to do so, and that those not withdrawn by that time be considered in favor of the proposition to reopen negotiations with the Remington company, was carried unanimously. Upon motion the old subscription committee was continued, and a new subscription list will be circulated for subscribers to stock to replace all shares that may be withdrawn.

#### AUTOMOBILES AT THE CYCLE SHOW

New York, Dec. 16.—Automobilism will be very liberally recognized at the cycle show at Madison Square Garden in January. Motors and motor cycles will be especially conspicuous. In fact, special provision has been made for motorcycle demonstration by the construction of a thirty-foot wide track in the basement. It was in this very cellar, by the way, that at one of the cycle shows the first motorcycle in motion was exhibited in this country.

Prominent among the makers of automobiles, motorcycles, motors, parts and accessories, who have already secured space are: The American Bicycle company, the DeDion-Bouton Motorette Co.,



Loomis Automobile Co., Warwick Cycle Co., Charles E. Miller, Peter A. Frasse & Co., Diamond Rubber Co., Twentieth Century Mfg. Co., Veeder Mfg. Co., E. R. Thomas Motor Co., Mobile Co. of America, John S. Leng's Son & Co., Dixon Crucible Co., Hartford Rubber Works Co., Badger Brass Mfg. Co., Fisk Rubber Co., C. J. Downing, E. A. Brecher & Co., P. & F. Corbin, American Dunlop Tire Co., Gleason-Peters Air Pump Co. and Rose Mfg. Co.

#### DEAL DIDN'T SUIT EAMES

The recent absorption of the Riker company by the Electric Vehicle Co. does not seem to have been accomplished without some differences of opinion. Lieutenant Eames, who has been identified with the Pope interests for a number of years, has resigned the management of the company's factory and the vice-presidency of the Columbia & Electric Vehicle Co. and the New Haven Carriage Co.—all practically one and the same thing—in consequence of his disapproval of the combination. Eames was long the manager of the motor vehicle department of the Pope company before the latter company which absorbed it had been formed.

#### VETERAN DOING GOOD WORK

C. A. Benjamin—hustling, talkative, never-weary Ben—of the good old bicycle days, is down south talking Locomobiles and doing the work of a high-grade press agent. With him are his wife, who also handles the vehicle like a professional, and W. H. Birdsall, who, Ben modestly announces, is recognized as the most expert handler of automobiles in America. The combination seems to be doing the most effective kind of missionary work for the Locomobile company and making friends everywhere.

#### FLIRTING WITH DETROIT

The wonderful story of how Chicago lost an automobile factory which will give employment to 5,000 men, all because of her labor troubles, is being rehashed by the eastern press. The com-

pany named in this connection was the International Power Co., whose home is at Providence, R. I. Now Detroit, it is said, is after the plum. The stories told of the motor vehicle industry are not likely to inspire confidence in the public mind either as to the industry or the veracity of the papers which tell them.

#### BLEW A FACTORY AWAY

During a gale at Westernport, Pa., a week ago, a large portion of the brick walls of the building, now being erected for the Maryland Automobile Mfg. Co., was blown down. The building was nearly ready for carpenter work. The loss is covered by tornado insurance.

#### JEFFERY GOING TO KENOSHA

The firm which is to occupy the old Sterling bicycle plant at Kenosha, Wis., and manufacture automobiles therein will be known as T. B. Jeffery & Co. Mr. Jeffery was one of the partners in the famous firm of Gormully & Jeffery, absorbed some time ago by the bicycle trust, with which Mr. Jeffery parted company a few weeks ago. Associated with him will be his son, Charles T. Jeffery, who designed the machine now made at the Rambler factory and who has made a careful study of the construction of motor vehicles for three years or more. He has kept himself constantly advised of the progress of events abroad and is familiar with all the fine points of European vehicles. The plant, which is a model in its way, and all built on one floor, covers a space of 600 by 150 feet and has ample grounds around it.

#### PHILADELPHIA SHOW EXHIBITORS

The following is a list to date of the exhibitors at the first automobile show of Philadelphia, February 4 to 9, inclusive: Locomobile Co. of America, Mobile Co. of America, Electric Vehicle Co., John Wanamaker, Waltham Mfg. Co., Foster Automobile Co., Maurice Loeb, De Dion-Bouton Motorette Co., Marlborough Automobile Co., Gray & Davis, Bevin Bell Co., Wharton & Wright, Winton Motor

Carriage Co., Reading Steam Vehicle Co., Overman Automobile Co., Manufacturers' Supplies Co., Fanning Electric Co., R. C. Wall Mfg. Co., Chas. F. Swartz, Rose Mfg. Co., Liberty Bell Co., Diamond Rubber Co., Consolidated Tire Co., Rothchild & Co., Motor Vehicle Power Co., Philadelphia Gas & Gasoline Engine Co., Pennsylvania Rubber Co., Hinchman & Hawkins, Skene American Automobile Co.

### BRIEF NEWS OF THE INDUSTRY

The Motor Age is in receipt of a letter from a subscriber in Norway which reads in part as follows: "Please send us catalogues and descriptive matter of motor tricycles, cars, parts and accessories. We are the largest wholesale dealers in this country in cycles and intend to open an automobile department. We could take the sole agency for Norway and Sweden." Many such letters reach this paper in the course of a year and are, of course, referred to its patrons. It pays to keep one's name before foreign buyers through the medium of The Motor Age.

John A. Bechtel, formerly secretary of the Hawley Down-Draft Furnace Co., Cincinnati, has gone to Connersville, Pa., to become general manager of an automobile manufacturing company. If the concern proves satisfactory it is the intention that a controlling interest be purchased by Bechtel and Cincinnati relatives and the plant removed to Cincinnati. In that event it is intended that the company operate public passenger automobiles. The promoters are enthusiastic over the project.

B. J. Carter, of Jackson, Mich., has joined the ranks of the automobile builders, and is now introducing a steam carriage of stanhope pattern. It has many new small features and is well designed. Trials of first machine have shown satisfactory efficiency.

The Autocar Co., now of Ardmore, Pa., but formerly of Pittsburg, has just disposed of a factory which it built there, for about \$50,000.

Fred T. Merrill, of Portland, Ore., fortunate possessor of one of the most fer-

tile brains in the bicycle business, recently made a trip east to investigate motor vehicles. He has now returned to the far west, stopping on his way at Seattle, where he has a store, for the purpose of securing additional space wherein to place electric and gasoline rigs. Merrill announced that he contemplates operating an automobile line between Seattle and Portland.

The Winton Motor Vehicle Co. has leased Proctor's Palm Garden, 150 and 152 East Fifty-eighth street, New York, and expects to make it the finest automobile depot in the east. It is a fine, big institution, and will be in charge of M. Owen.

President L. E. Hoffman, of the Hoffman Bicycle Co., has a good opinion as to the advertising qualities of the Motor Age. He recently had an inquiry for a steam vehicle from China. The writer said he saw a description of the Hoffman vehicle in the Motor Age.

The Underwood Motor Co., formerly of Sandusky, O., has removed to Elmore and will occupy a part of the old bicycle factory if the local papers are to be believed. S. R. Duprie, formerly of the Olds Motor Works, Detroit, is interested in the concern.

C. A. Benjamin is scouring the south in the interest of the Locomobile. He has a neat system of advising people in advance of his coming, and of his desire to demonstrate to them the practicability and general usefulness of the machine he represents.

The St. Louis Automobile & Supply Co., Twenty-third and St. Charles streets, St. Louis, has completed a gasoline trap to go to Sierra Hermousa, Mexico. It will carry four passengers and can make a run of 150 miles on one filling of the fuel tank.

The Beardsley & Hubbs Co., Mansfield, O., is making preparations for the manufacture of gasoline vehicles. A new building has been secured for the purpose and the company's present carriage business will be continued at the old plant.

The Ashton Valve Co., 271 Franklin street, Boston, is mailing to the trade a

handsome 1901 calendar advertising the Ashton "Pop" safety valve and Ashton pressure and vacuum valves. This company now manufactures valves for automobile steam boilers and pressure tanks.

An effort is being made in Grand Rapids to organize a company to make automobiles. The promoters have an eye on the factory formerly devoted to the manufacture of Clipper bicycles and which was closed by the American Bicycle Co.

James E. Cole, of Alma, and Andrew Lang, of Topeka, Kan., have constructed an oil-propelled machine which they believe they can make and sell, at a profit, at \$250. The establishment of a factory in Topeka is under discussion.

The Lee & Porter Axle Co., Dowagiac, Mich., denies that it will manufacture complete vehicles as has been reported. The company will confine its attention in the motor vehicle line to the production of axles.

The Elmore Mfg. Co. is reported to be engaged in the manufacture of a larger vehicle than any it has yet turned out and to be about ready to let it out of the factory. It is to carry four people.

The city fathers of Rochester, N. Y., have passed an automobile ordinance, regulating the speed of motor cars to six miles an hour in the downtown districts and eight miles an hour in the suburbs.

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*A Journal Published in the  
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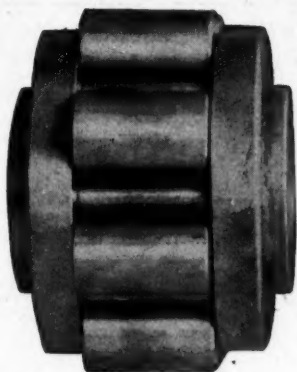


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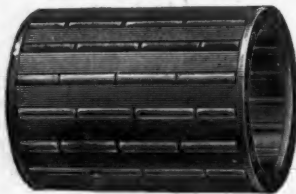
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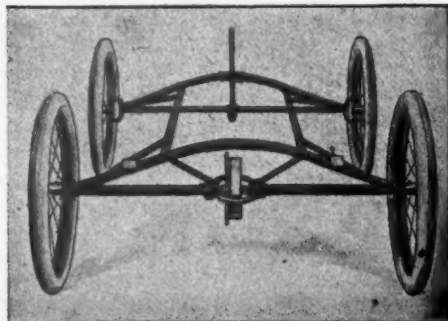


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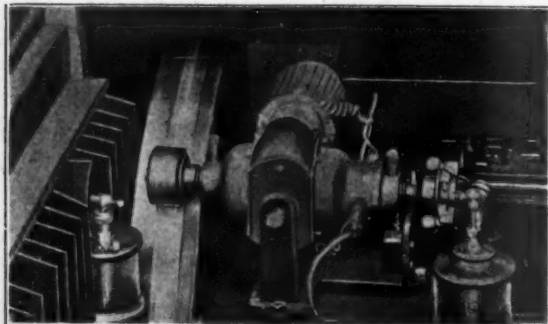
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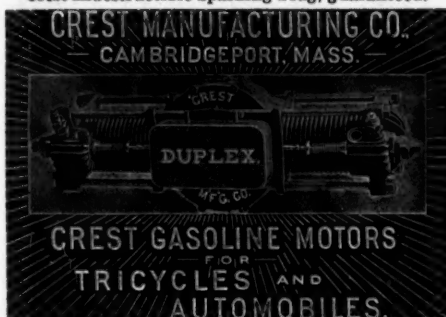
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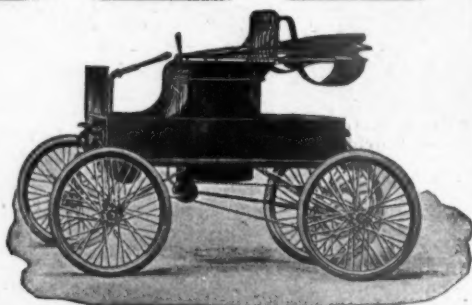
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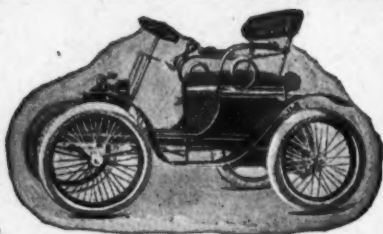
HEAVIER  
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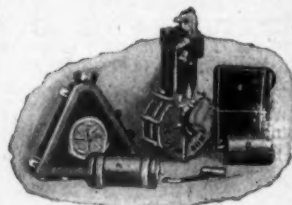
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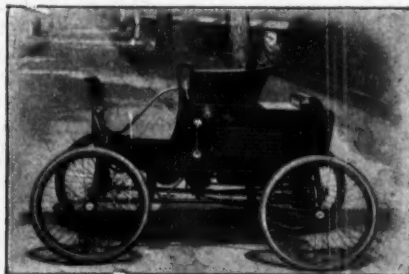


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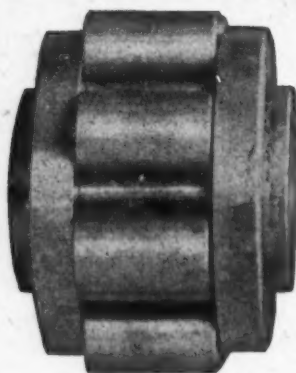
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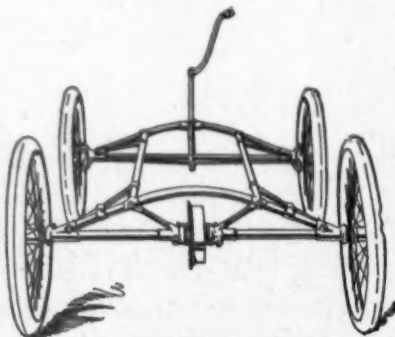
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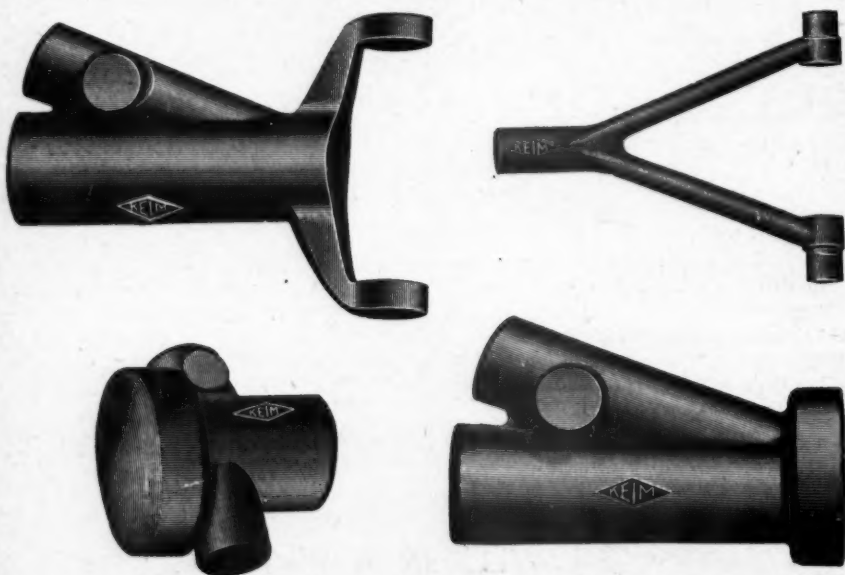
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